

CLAIMS

- Claim 1. An FM detector for a direct-conversion receiver with an FM input signal comprising:
- a frequency-modulated (FM) RF input signal;
 - a local oscillator having an in-phase frequency local oscillator signal (VLOI) and a quadrature frequency local oscillator signal (VLOQ);
 - a first mixer to mix said FM RF signal and said VLOI to produce an in-phase beat frequency signal VIFI;
 - a second mixer to mix said FM RF signal and said VLOQ to a quadrature beat frequency signal VIFQ; and
 - a third mixer to mix said VIFI and VIFQ to serve as an FM detector and to output a demodulated signal.

Claim 2. The FM detector as described in claim 1, further comprising a first low-pass filter inserted between said first mixer and said FM detector, and a second low-pass filter inserted between said second mixer and said FM detector.

Claim 3. The FM detector as described in claim 1, wherein said in-phase beat frequency and said quadrature beat frequency are lower than the RF input signal frequency.

Claim 4. The FM detector as described in claim 3, wherein said in-phase beat frequency and said quadrature beat frequency are of zero frequency.

Claim 5. The FM detector as described in claim 1, wherein said third mixer is a multiplier.

Claim 6. The FM detector as described in claim 5, wherein said multiplier is a Gilbert cell.

Claim 7. The FM detector as described in claim 5, wherein said multiplier is an Exclusive-OR gate.